REMARKS

The references cited by the Examiner in the rejections of the claims along with the Examiner's comments have been diligently studied. Reconsideration of the above-identified patent application in view of the amendment above and the remarks below is respectfully requested.

Claims 3, 6, 14, 15, 17 and 29 have been amended. No claims have been canceled. No new claims have been added in this paper. Therefore, claims 1-11 and 14-31 are pending. Of these claims, claims 5, 9-11, 16, 18, 19 and 21-28 have been withdrawn from further consideration. Therefore, claims 1-4, 6-8, 14, 15, 17, 20 and 29-31 are under active consideration.

Claims 3, 4, 6, 14, and 17 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,982,602 to R.L. Tellas et al. (hereinafter Tellas). In support of the rejection, the Examiner commented,

> Regarding claim 3, Tellas discloses the claimed invention including:
> - An outer conductor (Figure 3-28)
> - An inner conductor (Figure 3-32) extending coaxially within said outer conductor, said inner and outer conductors being spaced apart (Figure 3)
> - A shunt conductor (Figure 3-40) for shunting electromagnetic signals traveling within said inner conductor which fall outside of the desired frequency band, said shunt conductor comprising a first end (Figure 3-32) and a second end (Figure 3-42), the first end of said shunt conductor being coupled to said inner conductor (Figure 3-32) and the second end of said shunt conductor being coupled to said outer conductor (Figure 3-42).
> - Wherein said shunt conductor (Figure 3-40) comprises first and second contiguous curved portions, said first and second curved portions extending along different arcuate paths (Figure 3-40)
>
> Regarding claim 4, Tellas discloses an RFIC tube (Figure 3-38) disposed between said inner conductor and said outer conductor, said RFIC tube being shaped to define an opening (Figure 3-36).
>
> Regarding claim 6, Tellas discloses the first portion of the shunt conductor extending out from inner conductor through the opening in the RFIC tube (Figure 3-38) along a first curved path, the second portion of said shunt conductor wrapping around said RFIC tube (Figure 3-40).
>
> Regarding claim 14, Tellas discloses the claimed invention including:
> - An outer conductor (Figure 3-28)

- An inner conductor (Figure 3-32) extending coaxially within said outer conductor, said inner and outer conductors being spaced apart (Figure 3)
- A shunt conductor (Figure 3-40) for shunting electromagnetic signals traveling within said inner conductor which fall outside of the desired frequency band, said shunt conductor comprising a first end (Figure 3-32) and a second end (Figure 3-42), the first end of said shunt conductor being coupled to said inner conductor (Figure 3-32) and the second end of said shunt conductor being coupled to said outer conductor (Figure 3-42).
- A first pair of insulators (Figure 4-15/23) covering at least a portion of said inner conductor, said first pair of insulators insulating at least a portion of said inner conductor from said outer conductor to define at least one region of air (between the inner and outer conductors).

Regarding claim 17, Tellas discloses a region of air between said inner and said outer conductor (Figure 4).

This rejection is respectfully traversed.

With respect to claim 3 as amended herewith, applicant claims a protective device for transmitting electromagnetic signals of a desired frequency band comprising, inter alia, an outer conductor; an inner conductor extending coaxially within the outer conductor; and a shunt conductor for shunting electromagnetic signals traveling within said inner conductor, the shunt conductor comprising a first end, a second end and an intermediary portion which connects the first and second ends, wherein the intermediary portion of the shunt conductor is non-linear along the entirety of its length. To the contrary, Tellas does not disclose a protective device comprising an inner conductor, an outer conductor and a shunt conductor which includes a first end, a second end and an intermediary portion, the intermediary portion being non-linear along the entirety of its length. Rather, Tellas discloses a surge protector connector (10) that is provided with a curvilinear conductive stub (40). *See* column 5, lines 30-60 and Fig. 3 in Tellas. Stated another way, a significant portion of the conductive stub (40) in Tellas is linear (i.e., the portion of the stub that initially extends in a radial direction from inner conductor (32)). As can be appreciated, the fact that applicant's claimed device includes a shunt conductor which is non-linear along the entirety of its

length provides it with a notable advantage over devices which include a stub that is at least partially linear. Specifically, applicant has recognized that curvilinear-shaped stubs often experiences problems due to the considerably sharp bend at the juncture between the radially extending first portion and the annularly extending second portion. This sharpened bend increases the forces of high current transients which, in turn, can deform or break the shorting stub, which is highly undesirable. *See e.g.,* page 5, lines 5-11 of the subject patent application. As a means of comparison, it should be noted that applicant's non-linear shunt design provides approximately 3-4 times greater peak current capability than the curvilinear shunt design shown in Tellas, which is highly desirable.

With respect to claims 4 and 6, applicant respectfully contends that claims 4 and 6 are in allowable form, inter alia, for being dependent upon claim 1, which applicant respectfully contends is in allowable form for the reasons noted above.

With respect to claim 14 as amended herewith, applicant claims a protective device for transmitting electromagnetic signals of a desired frequency band comprising, inter alia, an outer conductor; an inner conductor extending coaxially within the outer conductor; a shunt conductor for shunting electromagnetic signals traveling within said inner conductor which fall outside of the desired frequency band; a first pair of insulators constructed of a first dielectric material; and a second dielectric material disposed between the first pair of insulators and at least one of the inner and outer conductors. To the contrary, Tellas does not disclose a protective device comprising an inner conductor, an outer conductor, a shunt conductor, a first pair of insulators constructed of a first dielectric material and a second dielectric material disposed between the first pair of insulators and at least one of the inner and outer conductors. Rather, Tellas shows a connector (10) with dielectric

insulators (15 and 23) which extend the full region between the inner conductor (32) and the outer conductor (34). *See* Fig. 4 in Tellas. In this manner, it is to be understood that applicant's claimed device utilizes multiple dielectric materials between the inner and outer conductors to adjust lengths of the through transmission line in order to achieve either wide or narrow band RF performance, which is highly desirable. For example, as seen most clearly in Fig. 2 of the subject patent application, regions of lower dielectric constant material (e.g., air) can be introduced and/or added the into higher dielectric constant material (namely, insulators 53 and 54) in order to maintain the nominal impedance of the through transmission line, thereby enabling the device to operate as a narrow band device. As another example, as seen most clearly in Fig. 10 of the subject patent application, regions of lower dielectric constant material (e.g., air pockets 251 and 252) can be reduced, removed and/or filled with higher dielectric material (e.g., insulators 249 and 250) to reduce the line impedance to values lower than nominal, thereby enabling the device to operate as a wide band device. *See* page 12, line 22 through page 13, line 6 of the above-identified patent application.

With respect to claim 17, applicant respectfully contends that claim 17 is in allowable form for being dependent upon claim 14, which applicant respectfully contends is in allowable form for the reasons noted above.

Withdrawal of the rejection of claims 3, 4, 6, 14 and 17 under 35 U.S.C. 102(b) as being anticipated by Tellas is respectfully urged.

Claims 7-8 and 29-30 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,554,608 to R. Block (hereinafter Block). In support of the rejection, the Examiner commented,

> Regarding claim 7, Block discloses a protective device comprising:
> - An outer conductor (Figure 10-312)

- An inner conductor extending coaxially within said outer conductor, said inner and outer conductors being spaced apart (Figure 10-331)
- A shunt conductor (Figure 13-551) for shunting electromagnetic signals traveling within said inner conductor which fall outside of the desired frequency band, said shunt conductor comprising a first end (Figure 15-L618) and a second end (Figure 15-L632), the first end of said shunt conductor being coupled to said inner conductor (Figure 10-331)
- A plurality of voltage protective components (Figure 13-550A/B), each voltage protective component being coupled at one end to said shunt conductor (Figure 13-551) and the other to said outer conductor (Figure 13-550A/B).

Regarding claim 8, Block discloses the voltage protective (Figure 13-550A/B components being mounted on opposing sides of said shunt conductor (Figure 13-551/552).

Regarding claim 29, Block discloses a protective device comprising:

- A first conductor (Figure 15-L618)
- A second conductor (Figure 15-L631, L632)
- A plurality of gas discharge tubes coupled between said first and second conductors (Figure 5-C561, C650, col. 18, lines 56-57)

Regarding claim 30, Block discloses a shunt/short between a gas discharge tube C652 and the conductor L618 (Figure 15 and Figure 14-551).

This rejection is respectfully traversed.

With respect to claim 7, applicant claims a protective device for transmitting electromagnetic signals of a desired frequency band, the protective device comprising, inter alia, an outer conductor, an inner conductor extending coaxially within said outer conductor, a shunt conductor for shunting electromagnetic signals traveling within the inner conductor, and a plurality of voltage protective components. Applicant respectfully disagrees with the Examiner's contention that Block discloses a protective device of the same claimed construction.

As a first point, applicant claims a protective device comprising, inter alia, a shunt conductor for shunting electromagnetic signals traveling within the inner conductor which fall outside of the desired frequency band. To the contrary, the connector in Block does not disclose a shunt conductor for shunting electromagnetic signals traveling within the inner conductor. Applicant respectfully

disagrees with the Examiner's suggestion that item 551 in Fig. 14 is a shunt conductor. Rather, applicant contends that item 551 in Fig. 14 is a transmission line wire and, as such, relates to a segment of the through conductor (i.e., the inner conductor). As can be appreciated, the transmission line wire 561 (which was misidentified as item 551 in Fig. 14) does not serve to shunt electromagnetic signals of a particular frequency band from the inner conductor.

As a second point, applicant claims a protective device which has a coaxial transmission structure. To the contrary, Figures 13 and 14 in Block, which were directly identified in the Examiner's rejection, do not have a coaxial transmission structure. Rather, it should be noted that Figures 13 and 14 in Block represent a connector which has a twin line transmission structure.

With respect to claim 8, applicant respectfully contends that claim 8 is in allowable form, inter alia, for being dependent upon claim 7, which applicant respectfully contends is in allowable form for the reasons noted above.

With respect to claim 29 as amended herewith, applicant claims a protective device comprising, inter alia, a first conductor, a second conductor and a plurality of gas discharge tubes connected in parallel between the first and second conductors. To the contrary, Block does not disclose a protective device comprising first and second conductors and a plurality of parallel gas discharge tubes. Rather, the gas discharge tubes (650 and 651) in Block are effectively isolated from each other by the relative large series inductors (L631 and L632) and diodes. As a consequence, gas discharge tubes (650 and 651) in Block are not effectively in parallel.

With respect to claim 30, applicant respectfully contends that claim 30 is in allowable form, inter alia, for being dependent upon claim 29, which applicant respectfully contends is in allowable form for the reasons noted above.

Withdrawal of the rejection of claims 7-8 and 29-30 under 35 U.S.C. 102(b) as being anticipated by Block is respectfully urged.

Claim 1 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Tellas in view of U.S. Patent No. 4,389,624 to Y. Aihara et al. (hereinafter Aihara). In support of the rejection, the Examiner commented,

> Regarding claim 1, Tellas discloses a device for transmitting electromagnetic signals of a desired frequency band comprising:
> - An outer conductor (Figure 3-28)
> - An inner conductor (Figure 3-32) extending coaxially within said outer conductor spaced apart.
> - A shunt conductor (Figure 3-40) for shunting electromagnetic signals traveling within said inner conductor (Figure 3-32) which fall outside of the desired frequency band (col. 1, lines 61-65), said shunt conductor comprising a first portion and a second portion, the first portion being coupled to said inner conductor (Figure 3).
>
> Tellas does not disclose the limitation of *a layer of dielectic disposed between the second portion of the shunt conductor and the outer conductor, the layer of dielectric material capacitively coupling the second portion of the shunt conductor to said outer conductor*. However, in at least col. 1, lines 23-24, Aihara discloses a dielectric member in an open circuit between the outer and inner conductors capacitively coupling the second portion of the shunt conductor to said outer conductor (col. 1, lines 23-30).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used Tellas' coaxial device with Aihara's dielectric material between inner and outer conductors because dielectric member allows for a change in capacitance, which can adjust the resonant frequency of the coaxial device (col. 1, lines 61-64).

This rejection is respectfully traversed.

Applicant respectfully disagrees with the Examiner's contention that it would have been obvious to one of ordinary skill in the art at the time the invention was made "to have used Tellas' coaxial device with Aihara's dielectric material between inner and outer conductors because dielectric member allows for a change in capacitance." Specifically, applicant respectfully contends that it would not be obvious to combine the references as suggested by the Examiner since dielectric

member (3) in Aihara is provided for "purposes of making the coaxial resonator compact and making it have a high Q value." *See* col. 1, lines 21-24 of Aihara. To the contrary, applicant's claimed invention utilizes a thin layer of dielectric material 268 for the entirely unrelated purpose of serving "to create a distributed capacitance in stub 265...[which] allows for stub 265 to be capacitively grounded...[thereby enabling] shunt conductor 265 [to]...act as a $\lambda/4$ stub." *See* page 24, lines 1-4 of the subject patent application. Because Aihara neither teaches, discloses nor suggests using a dielectric member to create distributed capacitance, applicant respectfully contends that claim 1 is not rendered obvious over Tellas in view of Aihara.

Withdrawal of the rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over Tellas in view of Aihara is respectfully urged.

Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Tellas and Aihara in further view of Block. In support of the rejection, the Examiner commented,

> Regarding claim 2, Tellas/Aihara disclose the limitations as shown in the rejection of claim 1 above. Tellas/Aihara does not disclose the limitation of *at least one voltage protective component coupling said outer conductor to said shunt conductor.* However, in at least Figure 15 and column 2, lines 13-16, Block discloses a gas discharge device between the primary conductor and the secondary conductor.
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of Tellas/Aihara with Block's gas discharge tubes because they dissipate electrical surges while representing a low standing wave ratio for radio frequency energy transmitted along a cable (col. 2, lines 29-32).

This rejection is respectfully traversed.

Applicant respectfully contends that claim 2 is in allowable form, inter alia, for being dependent upon claim 1, which applicant respectfully contends is in allowable form for the reasons noted above.

Withdrawal of the rejection of claim 2 under 35 U.S.C. 103(a) as being unpatentable over Tellas and Aihara in further view of Block is respectfully urged.

Claim 15, 20, and 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tellas in view of U.S. Patent No. 3,193,779 to Beaty (hereinafter Beaty). In support of the rejection, the Examiner commented,

> Regarding claims 15 and 31, Tellas discloses the limitations are shown in the rejection of claim 14 above. Tellas does not disclose the said first pair of insulators to be replaceable with a second pair of insulators. However, in at least column 11, lines 46-50, Beaty discloses two insulators (Figure 4-190/236) providing a low radio frequency impedance.
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Tellas' insulator pair with Beaty's low radio frequency impedance insulators because it precludes radio frequency energy from leaking out of the source in the non-conducting gaps (col. 11, lines 46-47).
>
> Regarding claim 20, Tellas discloses the limitations are shown in the rejection of claim 14 above. Tellas does not disclose a *second pair of insulators which includes a first annularly-shaped portion and a second annularly-shaped portion, said first and second annularly-shaped portions having different thicknesses.* However, in at least column 9, lines 2-6, Beaty discloses a pair of insulators (Figure 4-190/236) with a first annularly-shaped portion (Figure 4-246) and a second annularly shaped portion (Figure 4-238) of a different thickness.
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Tellas' insulator pair with Beaty's annular shaped varying thickness insulator (Figure 4-238) because the annular dielectric band prevents accidental short circuits between the housing end portion and the housing body portion (col. 9, lines 57-60).

This rejection is respectfully traversed.

Applicant respectfully contends that claims 15 and 20 are in allowable form, inter alia, for being dependent upon claim 14 which applicant respectfully contends is in allowable form for the reasons noted above. In addition, applicant respectfully contends that claim 31 is in allowable form, inter alia, for being dependent upon claim 29 which applicant respectfully contends is in allowable form for the reasons noted above.

Withdrawal of the rejection of claim 15, 20 and 31 under 35 U.S.C. 103(a) as being unpatentable over Tellas in view of Beaty is respectfully urged.

The prior art made of record and not relied upon by the Examiner is noted.

Allowance of the application with claims 1-4, 6-8, 14, 15, 17, 20 and 29-31 is earnestly solicited.

If there are any fees due in connection with the filing of this paper that are not accounted for, the Examiner is authorized to charge the fees to our Deposit Account No. 11-1755. If a fee is required for an extension of time under 37 C.F.R. 1.136 that is not accounted for already, such an extension of time is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on 3-14-07.

Dan S. Kriegsman

Daniel S. Kriegsman